January 19, 1888.

Professor STOKES, D.C.L., President, in the Chair.

The Presents received were laid on the table, and thanks ordered for them.

The following Papers were read:—

I. "Notes on the Spectrum of the Aurora." By J. NORMAN LOCKYER, F.R.S. Received January 9, 1888.

I exhibited to the Society on November 17, 1887, a tabular statement showing the bright lines seen in the spectra of various celestial bodies, and I also gave those recorded in the spectrum of the Aurora showing many remarkable coincidences.

I now find that the connexion is closest between the auroral spectrum and that of stars 3*a*, and in anticipation of a subsequent communication of details I send on the accompanying table, showing the origin of Dunér's bands, so far as I have at present made them out, and their connexion with the spectrum in question.

The individual observations which I have used in the table are those collected by Mr. Capron and Mr. Backhouse ('Nature,' vol. 7, pages 182, 463).

Table of Wave-lengths of Auroral Lines.

Barker	431	470	482	502	517				562	623
Smyth									558	635
Zöllner										628
A. Clerke			485				532			
Herschel							531			
Backhouse	430			501	516·5		532			606
Lord Crawford			more ref. than F			523				
Proctor (R. H.)			„							
Vogel		469								
Ellery										635
O. Struve									554	
Ångström		472				521			556	
Lemström	426	469				525				
German N. P. Ex.									557	
Respighi									557	
Peirce	431	464	486			520	531	545	557	
Probable origin	CH	C hot	C cold	Mg	C hot	Mg	*	Zn† (1)‡	Mn (1)	Fe (1)
Wave-lengths of probable origin	431	474	483	500	516·5	520·1		546	558	615
Dunér's bands			477 485 (9)					550 545 (5)		616 627 (2)
		460 474 (10)		495 503 (8)	516 521 (7)				564 559 (4)	

* Coronal line. † Another probable origin for this in the aurora is 540 Mn. ‡ This means brightest fluting.

Addendum.—Received January 19, 1888.

The following table shows the above figures in another form and includes the bright lines recorded in γ-Cassiopeiæ :—

Aurora.	Dunér's bands.	Bright lines in γ-Cassiopeiæ.	Probable origin.	Wave-length of probable origin.
431	..	..	CH	431
474	460—474 (10)	..	C (hot)	474
..	..	462·3	Sr	460·7
483	477—485 (9)	..	C (cool)	483
500	495—503 (8)	499	Mg	500
516·5	516—521 (7)	516·7	C (hot)	516·5
520·1	..	..	Mg	520·1
531	..	531	Coronal line	
..	..	542·2	Mn	540
545	545—550 (5)	..	Zn (1)	546
558	559—564 (4)	555·7	Mn (1)	558
..	585—595 (3)	586	Mn (2)	586
615	616—627 (2)	616	Fe (1)	615
635	..	635·6	*	..

II. "On the Secondary Carpals, Metacarpals, and Digital Rays in the Wings of existing Carinate Birds." By W. K. Parker, F.R.S. Received January 11, 1888.

In a paper "On the Morphology of Birds," already sent in to the Royal Society, but not yet published, I have described certain additional parts in the wings of Gallinaceous birds.

One of these lies on the radial side of the first metacarpal; the other two are on the ulnar side of the second and third metacarpals.

These parts, which at first caused me considerable surprise, being wholly unexpected by me, are only part of what I have since found in other families.

During the past year I have worked out the development of the skeleton in the Duck tribe ("Anatidæ"), in the Auk tribe ("Alcidæ"), and in the Gull tribe ("Laridæ"), and to some degree in some other families. The subject appears to me to be of great interest, and I have, through various English and American friends, obtained many scores of embryos and young birds, &c., that I may be able to trace

* This line is seen as a pretty bright line in the spectrum of the Limerick meteorite, but its origin has not yet been determined, although comparisons have been made with most of the common elements. So far, it has not been observed in any other meteorite.